

DESCRIPTION

PIEZOELECTRIC DEVICE

BACKGROUND OF THE INVENTION

1. Technical Field of the Invention

[0001] —The present invention relates to piezoelectric devices, and in particular relates to a piezoelectric device having piezoelectric elements using a piezoelectric substrate and a piezoelectric thin film, such as a resonator ~~resonators~~ and a filter.

2. Description of the Related Background Art

[0002] —Recently, a chip-size package (CSP) has been developed in which ~~that~~ a piezoelectric device, such as a surface -acoustic -wave filter (SAW filter) including ~~using~~ a piezoelectric substrate and a bulk-acoustic-wave filter (BAW filter) including ~~using~~ a piezoelectric thin film, is miniaturized to ~~until~~ an element chip size.

—For example, a piezoelectric device 2 shown in Fig. 5 includes a piezoelectric substrate 3 having piezoelectric elements including IDTs (interdigital transducers, + interdigital electrodes) 4a and an electrically conductive pattern, such as pads 4b, provided ~~formed~~ on one principal surface 3a of the piezoelectric substrate 3, + a cover 6 covering the one principal surface 3a with a support layer 5 therebetween, + and external electrodes 7, + which are exposed

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U.S. Patent Application No.: Unknown
January 11, 2006
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AMENDMENTS TO THE SPECIFICATION:

A substitute specification and a marked-up copy of the English translation of the originally filed PCT application are attached hereto.

Please replace the Title of the Invention with the following new Title of the Invention:

PIEZOELECTRIC DEVICE

*Please enter.
TMD 6-7-07*

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Attorney Docket No. 36856.1405

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PIEZOELECTRIC DEVICE

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1. Field of the Invention

[0001] The present invention relates to piezoelectric devices, and in particular relates to a piezoelectric device having piezoelectric elements using a piezoelectric substrate and a piezoelectric thin film, such as a resonator and a filter.

2. Description of the Related Art

[0002] Recently, a chip-size package (CSP) has been developed in which a piezoelectric device, such as a surface acoustic wave filter (SAW filter) including a piezoelectric substrate and a bulk-acoustic-wave filter (BAW filter) including a piezoelectric thin film, is miniaturized to an element chip size.

[0003] For example, a piezoelectric device 2 shown in Fig. 5 includes a piezoelectric substrate 3 having piezoelectric elements including IDTs (interdigital transducers, interdigital electrodes) 4a and an electrically conductive pattern, such as pads 4b, provided on one principal surface 3a of the piezoelectric substrate 3, a cover 6 covering the one principal surface 3a with a support layer 5 therebetween, and external electrodes 7 which are exposed outside the cover 6. The piezoelectric device 2 is mounted in a face down

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